

Work Order ID 51940

Wednesday, September 09, 2009 3:28:24 PM



Page 1

Item ID: D206-667-203

Accept



Setup Start



Revision ID: C

Item Name: Crosstube Aft

Stop



Start Date: 9/11/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 9/30/2009 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: *PS/WH* Date: *09-09-09* Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D206-667-243	Rev C								

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-203 CHG003

★ SEE NLR - PG 3 -

110

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D206-667-243 using CNC bender program 206L-AF and Folio FT _____

(1K) X MB 09-10-06

120

QC15- Crosstube Dimensional Check



QC

Memo

0.00

Quality Control

27 S 07/10/06

(X)

✓

Work Order ID 51940

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Page 2

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Revision ID: C

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Start Date: 9/11/2009 Start Qty: 1.00

Required Date: 9/30/2009 Req'd Qty: 1.00

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Cust Item ID:

Customer:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

130



Crosstubes

Crosstubes

0.00

Memo

0.00

1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D206-667-243. Drill all (3) top holes. 2-Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243 Check dimensions between holes on all

★ SEE NCR
-OVER-

(1X) 2 MB 09-09-07

Pro

140



HandFXtube

Crosstubes Chemical Conversion

0.00

Memo

0.00

Hand Finishing Crosstubes

1 Ø - AM 9-10-07

150



QC

QC3- Inspect Part Finish

0.00

Memo

0.00






Quality Control

→ 809/10/08

(1X) 1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D206-667-203 PAR #: _____ Fault Category: crossholes NCR: Yes No DQA: 2 Date: 05-10-20
Resolution: documentation review Disposition: re-work QA: N/C Closed: 2 Date: 05-10-20

NCR: 51940		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
09.10.07	130	DRILL PASSED THROUGH CUFF, PUT MARK ON INNER DIA. RC LOA	CP 09.10.07 per GSI 042	DRILL ADIT ADDITIONAL HOLES TO MATCH OPPOSITE SIDE OF CUFF. REF DSI 9346 REV. G	MB 07-10-08	 02/10/08	CP 09.10.07 per GSI 042	 08/10/08
09.10.07	100	PAPER WORK NEEDS UPDATING TO ACCOUNT FOR ADDITIONAL HOLES RC LOA (from above NCR)	CP 09.10.07 per GSI 042	ADD DSI 9346 REV. I TO PAPERWORK GET FROM ENG (CP)	 05-10-06	 05-10-06	CP 09.10.07 per GSI 042	 05-10-06

NOTE: Date & initial all entries

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Item ID: D206-667-203

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Item Name: Crosstube Aft

Start Date: 9/11/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 9/30/2009 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00	2780110/08						
170 Outsource2 Outsource process - NDT	Outsource process - NDT per QSI038 4.1 Memo Liquid Penetrant Inspection as per QSI 038Or <input type="checkbox"/> Issue P/O: 10557 <input type="checkbox"/> LPI as per ASTM 1417 <input type="checkbox"/> Level 2 Attach copy of NDT results to work order	0.00 0.00							CZ 09/10/09 ①
180 Packaging Packaging	Packaging Memo Ensure copy of NDT results attached to work order.	0.00 0.00							CZ 09/10/09 ① CZ 09/10/09 ①

P/O: 10557

POSITIVE RECALL

EFFECTIVE 09.10.07 AUTH
RELEASED _____ DATE _____

NEED ISI
FROM ENG

N/A SEE P66
CP 09.10.07

Work Order ID 51940

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Item ID: D206-667-203

Accept



Setup Start



Revision ID: C

Stop



Item Name: Crosstube Aft

Start Date: 9/11/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 9/30/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

190

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

Ensure results are as per Dwg D206-667-243

ml 09 10 13 (1)

200

SprayPaint

0.00



SprayPaint

Memo

0.00

Spray Painting

1-Prime inside and outside crosstube as per QSI 005 4.2 □ 2-Paint outside crosstube with White Imron as per QSI 005 4.2 □ PRIME: □ Start

Time: 9:45 □ Finish Time: 10:30 □ PAINT: □ Start

Time: 2:30 □ Finish Time: 3:30

ml 09 10 13 (1)

210

QC14- Inspect Spray Paint

0.00



QC

Memo

0.00

Quality Control

Wrap in plastic bag to protect from scratches

ST 09-10-14

Wednesday, September 09, 2009 3:28:24 PM

Page 5

Accept

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Setup Start

Stop

**Cust Item ID:**

Abstract

Customer:

Run Start

Stop

[illegible]

Work Order ID 51940

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Page 6

Item ID: D206-667-203

Accept

Revision ID: C

Item Name: Crosstube Aft

Start Date: 9/11/2009 Start Qty: 1.00

Required Date: 9/30/2009 Req'd Qty: 1.00

Reference:

Cust Item ID:

Customer:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

250

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

LC 9/10/10 (1)

260

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

POSITIVE RECALL

EFFECTIVE 09.10.07 AUTH CP

RELEASED CP DATE 09.10.15

NEED DX FROM ENG.

(1) 09.10.16

270

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D206-667-203 □ Location: _____ □ PPP Rev: _____

LC 9/10/10 (1)

Work Order ID 51940

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Page 7

Item ID: D206-667-203

Accept

Revision ID: C

Item Name: Crosstube Aft

Start Date: 9/11/2009 Start Qty: 1.00

Required Date: 9/30/2009 Req'd Qty: 1.00

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

280

QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

09/10/20
PL 0910-20

Picklist Print

Wednesday, September 09, 2009 3:28:29 PM

Page 1

Work Order ID: 51940

Parent Item: D206-667-203RevC

Parent Item Name: Crosstube Aft

Comments:

Start Date: 9/11/2009

Required Date: 9/30/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	--------------------------	---------------	----------------	--------

AN960JD516

Purchased

No

100

Each

1,202.000

18.0000

Washer

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

1202

100564

2

106167

6

107534

34

107959

43

108246

46

108672

2

109059

49

109752

22

110363

46

110523

57

111279

43

112082

352

112314

500

D206-667-

203TRNRevC

Manufactured

No

220

Each

2.0000

1.0000

Crosstube Turning Detail

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

FG

2

45623

1

45625

1

p-52464 MB 09-10-06

Picklist Print

Page 2

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Work Order ID: 51940



Parent Item: D206-667-203RevC



Parent Item Name: Crosstube Aft

Start Date: 9/11/2009

Required Date: 9/30/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	--------------------------	---------------	----------------	--------

D2873-043RevA Manufactured No



220

Each

53.0000

2.0000



Nut Plate Assembly

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

53

45370

18

45422

15

50002

20

ml 09 10 15

D2873-045RevA Manufactured No



220

Each

71.0000

2.0000



Nut Plate Assembly

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

71

45210

11

46772

20

50001

40

ml 09 10 15

Picklist Print

Wednesday, September 09, 2009 3:28:29 PM

Work Order ID: 51940



Parent Item: D206-667-203RevC



Parent Item Name: Crosstube Aft

Start Date: 9/11/2009

Required Date: 9/30/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2892-1RevA		Manufactured	No			230	Each	48.0000	2.0000			
Support												

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	48	
35581	4	
41986	20	
42785	20	
45936	4	

mt 09 10 14

D3595-063-450RevA	Manufactured	No				230	Each	81.1789	4.0000			
RUBBER CUSHION												

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
LG	74	
50953	74	
Main Warehouse		
ST	7.1789	
38959	2	
43210	4.8	
46465	0.3789	

mt 09 10 14

Picklist Print

Page 4

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Work Order ID: 51940



Parent Item: D206-667-203RevC



Parent Item Name: Crosstube Aft

Start Date: 9/11/2009

Required Date: 9/30/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
MS20601-AD4W10		Purchased	No			230	Each	241.0000	14.0000			
RIVET												

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

241

110665

100

111177

141

ml 09 10 15

AN5-10A

Purchased

No

260

Each

150.0000

10.0000

Bolt

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

150

107013

8

110363

2

111425

2

111819

38

112314

50

112385

50

m111425 2x
m111819 8x

69/10/15 (1)

Picklist Print

Page 5

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Work Order ID: 51940



Parent Item: D206-667-203RevC



Parent Item Name: Crosstube Aft

Start Date: 9/11/2009

Required Date: 9/30/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN5-32A 		Purchased	No			260	Each	79.0000	4.0000	✓		
Bolt												

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST

79

106242

3

106519

4

110363

17

111916

5

112082

50

M11916

AN5-34A

Purchased

No

260

Each

50.0000

4.0000

✓

Bolt

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST

50

104679

2

105408

1

107013

2

111425

45

M11425

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Shop Packet Print

Page 5

Picklist Print

Page 6

Wednesday, September 09, 2009 3:28:29 PM

Work Order ID: 51940



Parent Item: D206-667-203RevC



Parent Item Name: Crosstube Aft

Start Date: 9/11/2009

Required Date: 9/30/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
MS21042L5 		Purchased	No			260	Each	1,311.000	4.0000			
Nut												

10/10/09 (1)

Warehouse
Location

Loc Qty

Loc Code

Main Warehouse

ST

1311

110382

10

111636

301

112314

1000

1111636

1112314

MS21920-22

Purchased

No



Clamp(per MIL-DTL-8783C)

260

Each

114.0000

4.0000



Warehouse
Location

Loc Qty

Loc Code

Main Warehouse

ST

114

109495

14

110260

50

111210

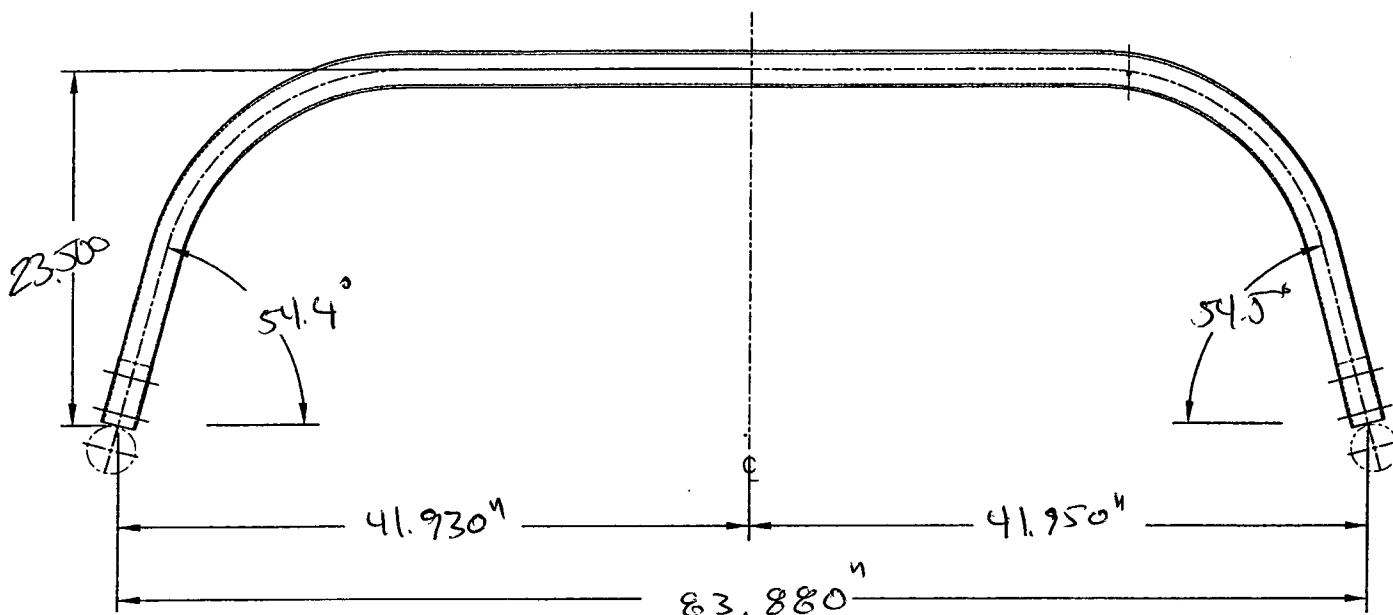
50

10/09 10/14

DART AEROSPACE LTD		Work Order:	51940
Description: Crosstube High Aft (206L)		Part Number:	D206-667-203
Inspection Dwg: D206-667-243		Rev: B C	Page 1 of 1

09.09.21

Required Dimension	Min	Max
Height	23.46	23.58
1/2 Span	41.86	41.98
Angle	54	56
Total Span	83.72	83.96



Comments

QC15 Inspection	S
Date	07/06/06

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Item	Qty -243	Part Number	Description
1	X	D206-667-243	CROSSTUBE ASSEMBLY (206L HIGH AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 519440

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6004-115
FINISHED LENGTH = 104.91±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-243" AND BATCH NUMBER ON
INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 21.9 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY.
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER
QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE
D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE
LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
08/11/06

C	REVISE GENERAL NOTES/PART LIST (ZN 07-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-450 WAS D2856-400-773 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCES (ZN 4-3, C5-3, D3-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. C
CHECKED	RF	D206-667-243	SHEET 1 OF 4
MFG. APPR.	RF	TITLE	SCALE
APPROVED	RF	CROSSTUBE ASSY (206L HIGH AFT)	NTS
DE APPR.	RF	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	08.11.06		

8

7

6

5

4

3

2

1

12 D2892-1 SUPPORT
2 PL

15 MS21920-22 CLAMP
4 PL

13 D3595-063-450
RUBBER CUSHION
4 PL, (UNDER CLAMP)

B

A4-2

D206-667-603

B7-2

C

D206-667-243
ASSEMBLY DETAIL
(VIEW LOOKING FWD)

D2873-043
NUT PLATE

MS20601AD4W10
RIVET, 4 PL

D2873-045
NUT PLATE

MS20601AD4W10
RIVET, 3 PL

90° REF

VIEW A-A:
CUFF DETAIL
SCALE 4X

C7-2

13 15
MS21920-22 CLAMP REF

12
D2892-1 SUPPORT REF

C D3595-063-450
RUBBER CUSHION REF

FWD

6°

D5-2 SECTION B-B
SCALE 5X

w/0-51940

B2-2

RELEASED
08/11/06

D2873-043
NUT PLATE

MS20601AD4W10
RIVET, 4 PL

D2873-045
NUT PLATE

MS20601AD4W10
RIVET, 3 PL

90° REF

VIEW C-C:
CUFF DETAIL
SCALE 4X

C2-2

DESIGN	00
DRAWN	RF
CHECKED	JP
MFG. APPR.	JP
APPROVED	JP
DE APPR.	JP
DATE	08.11.06

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO.
D206-667-243

REV. C

SHEET 2 OF 4

TITLE
CROSSTUBE ASS'Y (206L HIGH AFT) NTS

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8

7

6

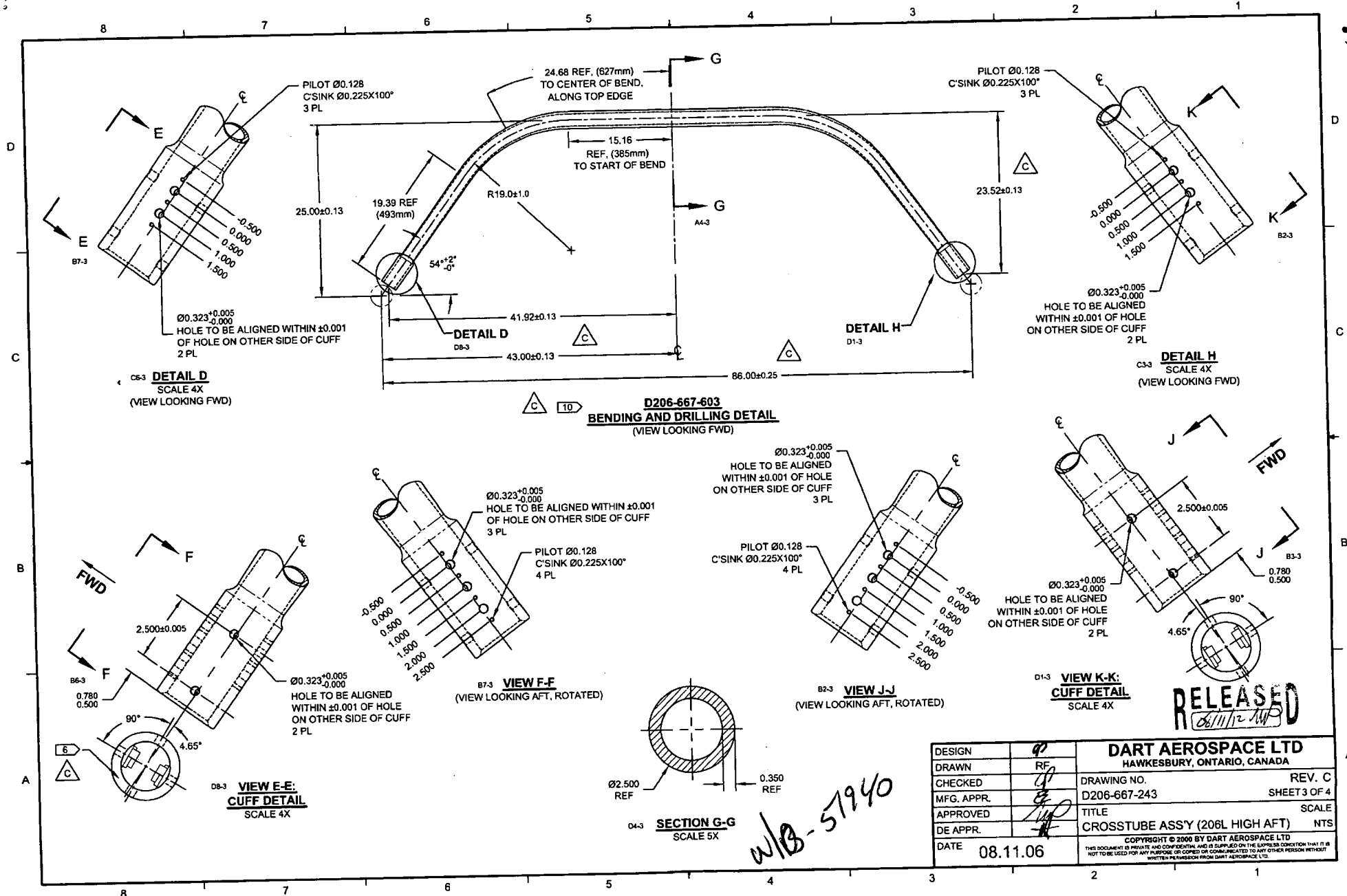
5

4

3

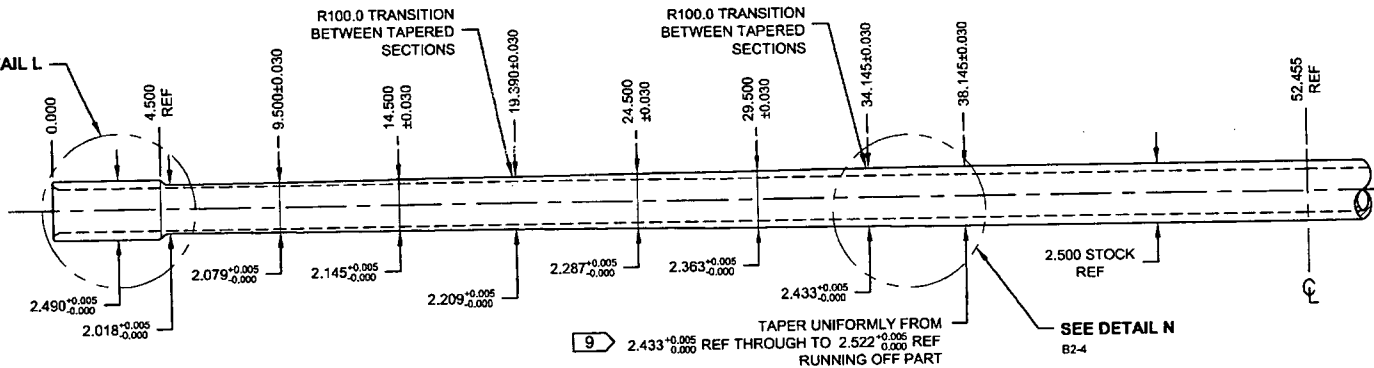
2

1

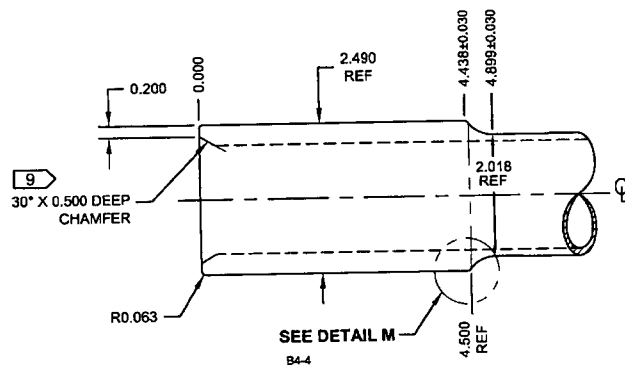


DESIGN	07	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CP	DRAWING NO.	REV. C
MFG. APPR.	EP	D206-667-243	SHEET 3 OF 4
APPROVED	EP	TITLE	SCALE
DE APPR.	EP	CROSSTUBE ASS'Y (206L HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

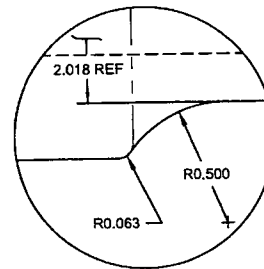
SEE DETAIL L
B7-4



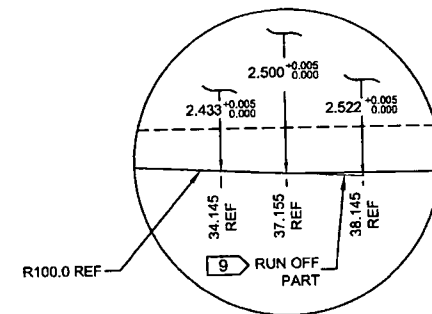
TURNING DETAIL



C7-4 **DETAIL L: CROSSTUBE CUFF**
NOT TO SCALE



B6-4 **DETAIL M: CUFF TRANSITION**
NOT TO SCALE



C4-4 **DETAIL N: TAPER RUN-OFF**
NOT TO SCALE

RELEASED
08/11/06

DESIGN	90	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	EP	DRAWING NO.	REV. C
MFG. APPR.	EP	D206-667-243	SHEET 4 OF 4
APPROVED	EP	TITLE	SCALE
DE APPR.	EP	CROSSTUBE ASSY (206L HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD	
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w/b-51940

DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS IIN-D206-667 REV. C

REF. CANADIAN STC: SH01-5

REF. FAA STC: SR01304NY

REFERENCE ONLY

THE FOLLOWING D206-667-101/-103/-203 AND D407-667-105 CROSSTUBES HAVE EXTRA HOLES DRILLED ON THE AFT SIDE OF THE CUFFS. THIS HOLE IS NOT REQUIRED FOR INSTALLATION OF DART CROSSTUBES ONTO BHT/AAI SKIDTUBES AS SHOWN IN FIGURE 1.

CUSTOMERS RECEIVING CROSSTUBES AT CHG 002 PRIOR TO 06.08.08 SHOULD CONTACT DART FOR DISPOSITION IF INSTALLING THE DART CROSSTUBES ONTO BHT/AAI SKIDTUBES PER IIN-D206-667 REV. C.

CUSTOMERS RECEIVING CROSSTUBES AT CHG 002 PRIOR TO 06.08.08 TO BE INSTALLED WITH DART SKIDTUBES MAY FIND THAT THE SUPPORTS HAVE BEEN INSTALLED BACKWARDS. THE SUPPORTS SHOULD BE REMOVED AND RE-INSTALLED PER ICA-D206-667.

PART NO.	CHANGE NUMBER	BATCH NO
D206-667-101	002	B24244, B28679, B29261
D206-667-103	002	B26702, B26704, B27980, B25606, B25605, B23220, B23219, B23218, B23217, B28682, B28683, B32664, B34139, B36053
D206-667-203	002	B27492, B27491, B27981, B25609, B25608, B25006, B24646, B34144, B36059, B51939, B51940
D407-667-105	002	B31553

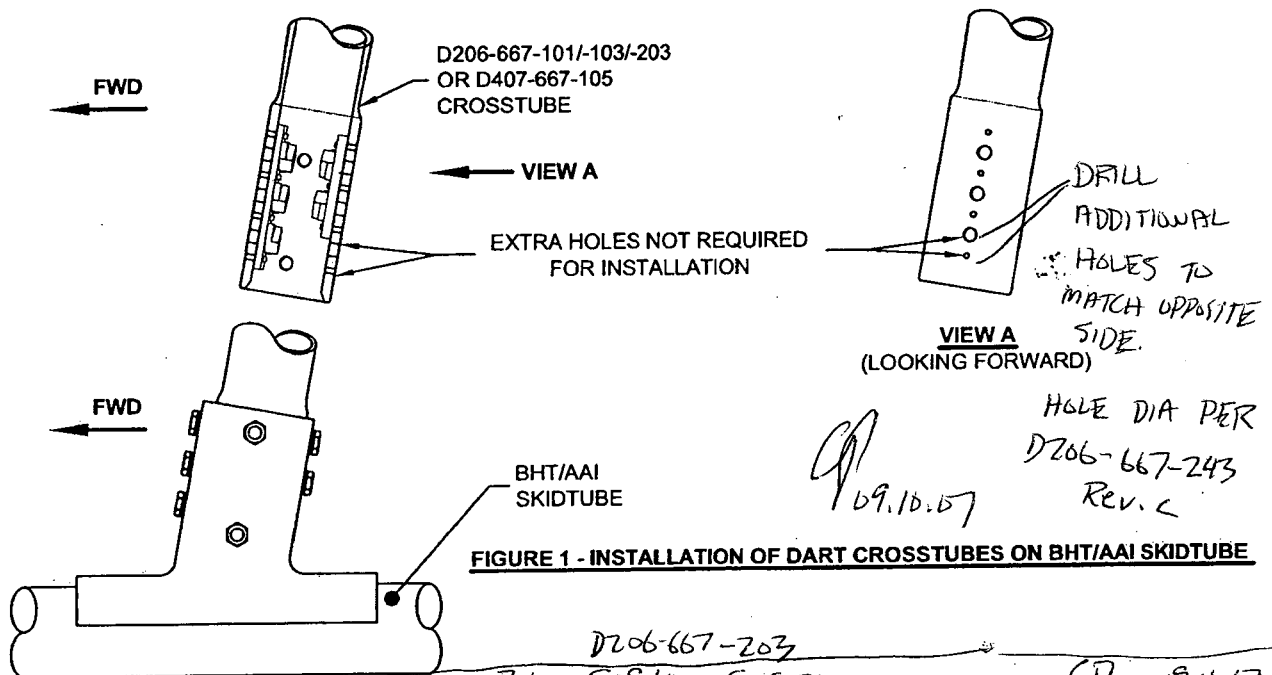


FIGURE 1 - INSTALLATION OF DART CROSSTUBES ON BHT/AAI SKIDTUBE

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED
BY: *[Signature]*
D. SHEPHERD (DE # 02)

DATE: 08.01.17
CERT. NO.: SH01-5
ISSUE NO.: 3

D206-667-203
B/N: S1940, S1939
CP 09.10.07

REV.	DESCRIPTION	BY	DATE
H	ADD B36053, B36059	PH	08.01.17
G	ADD B34139, B34144	MB	07.10.22
F	ADD D407-667-105 & B31553	MB	07.08.14
E	ADD B32664	MB	07.07.24
D	ADD B29261	MB	06.11.20
C	ADD B28679, B28682, B28683	PH	06.10.10
B	NEW ISSUE	PH	06.08.08
A			

DESIGN	FA	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
DRAWN	FA	
CHECKED	VE	DRAWING NO. REV. G
MFG. APPR.	N/A	DSI 9346 SHEET 1 OF 1
APPROVED	<i>[Signature]</i>	TITLE SCALE
DE APPR.	<i>[Signature]</i>	DEVIATION ON D206-667 & D407-667 NTS
DATE	08.01.17	

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DART SERVICE INSTRUCTION

TO AMEND INSTALLATION INSTRUCTIONS: IIN-D206-667 REV. C
REF. CANADIAN STC: SH01-5
REF. FAA STC: SR01304NY

THE FOLLOWING D206-667-101/-103/-203 AND D407-667-105 CROSSTUBES HAVE EXTRA HOLES DRILLED ON THE AFT SIDE OF THE CUFFS. THIS HOLE IS NOT REQUIRED FOR INSTALLATION OF DART CROSSTUBES ONTO BHT/AAI SKIDTUBES AS SHOWN IN FIGURE 1.

CUSTOMERS RECEIVING CROSSTUBES AT CHG 002 PRIOR TO 06.08.08 SHOULD CONTACT DART FOR DISPOSITION IF INSTALLING THE DART CROSSTUBES ONTO BHT/AAI SKIDTUBES PER IIN-D206-667 REV. C.

CUSTOMERS RECEIVING CROSSTUBES AT CHG 002 PRIOR TO 06.08.08 TO BE INSTALLED WITH DART SKIDTUBES MAY FIND THAT THE SUPPORTS HAVE BEEN INSTALLED BACKWARDS. THE SUPPORTS SHOULD BE REMOVED AND RE-INSTALLED PER ICA-D206-667.

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D206-667-101	002	B24244, B28679, B29261
D206-667-103	002	B26702, B26704, B27980, B25606, B25605, B23220, B23219, B23218, B23217, B28682, B28683, B32644, B34139, B36053
D206-667-203	002	B27492, B27491, B27981, B25609, B25608, B25006, B24646, B34144, B36059
D206-667-203	003	B39852, B51939, B51940
D407-667-105	002	B31553
D407-667-105	003	B39271




51940

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: 
D. SHEPHERD (DE # 02)

DATE: 09.10.08
CERT. NO.: SH01-5
ISSUE NO.: 3

I	ADD B51939, B51940	CP	09.10.08
H	ADD B39271, B39852	PH	08.06.16
G	ADD B36053, B36059	PH	08.01.17
F	ADD B34139, B34144	MB	07.10.22
E	ADD D407-667-105 & B31553	MB	07.08.14
D	ADD B32664	MB	07.07.24
C	ADD B29261	MB	06.11.20
B	ADD B28679, B28682, B28683	PH	06.10.10
A	NEW ISSUE	PH	06.08.08
REV.	DESCRIPTION	BY	DATE
DESIGN		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN			
CHECKED		DRAWING NO.	REV. I
MFG. APPR.		DSI 9346	SHEET 1 OF 2
APPROVED		TITLE	SCALE
DE APPR.		DEVIATION ON D206-667 & D407-667	NTS
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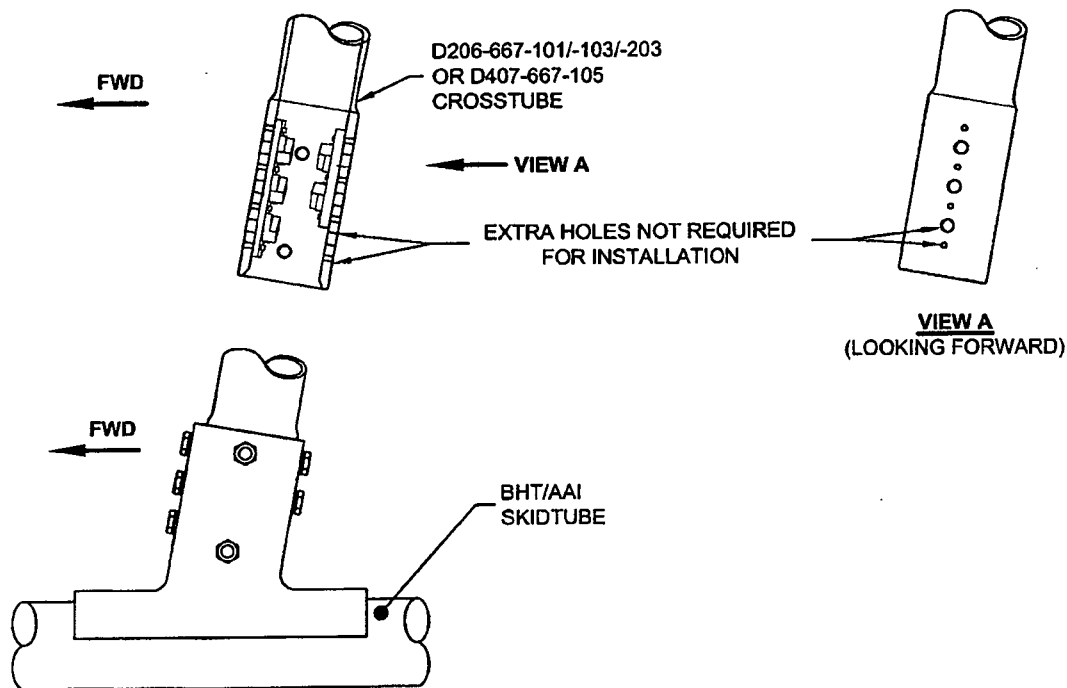


FIGURE 1 - INSTALLATION OF DART CROSSTUBES ON BHT/AAI SKIDTUBE

CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: *[Signature]*
D. SHEPHERD (DE # 02)

DATE: 09.10.08
CERT. NO.: SH01-5
ISSUE NO.: 3

DESIGN	<i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	<i>[Signature]</i>		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. 1
MFG. APPR.	N/A	DSI 9346	SHEET 2 OF 2
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	DEVIATION ON D206-667 & D407-667	NTS
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51940



LIQUID PENETRANT TEST REPORT

P-1530

PAGE 1 OF 1

CLIENT DART AEROSPACE DATE OCT-9-2009 TIME AM ☒ P
ATTENTION LINDA/CHAUTEL ACUREN JOB NO. 188-08-001567
ADDRESS 1270 48th DEEP ST, HAWKESBURY POWO NO. - 10557
ON. K6H 1K7 WORK LOCATION SAME
ACCEPTANCE STD. ASTM 1417 REV./DATE 200
PROJECT F.P.I. on CROSS TUBES AND MACHINED PARTS
ITEM(S) EXAMINED 10 CROSS TUBES
13 MACHINED PARTS

JOB DESCRIPTION PROCEDURE NO. LT- REV./DATE TECHNIQUE NO. LT- REV./DATE
PART NO. STAINLESS STEEL MATERIAL ALUMINUM THICKNESS N/A
SCOPE WET FLUORESCENT LIQUID PENETRANT INSPECTION
CARRIED OUT 100% EXTERNAL

TEST DETAILS

METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSION
FAMILY BRAND MASSNA FLUX BLACK LIGHT S/N 16459 ☐ OUTPUT > 1000 μ W/cm² ☐ AMBIENT < 1000 μ W/cm²
PENETRANT 2L-67 MINIMUM DWELL TIME 45 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ 5 ft
PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN. OTHER LABINO
DEVELOPER SKD 52 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N CAL DUE DATE
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE

SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☒ MACHINED ☐ SHOT BLASTED ☐ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/ 50°F ☒ 10°C/ 50°F TO 52°C/ 125°F ☐ > 52°C/ 125°F

RESULTS- ☒ METRIC ☐ IMPERIAL

1 - W.O. 51939 - CROSS TUBE ✓
1 - W.O. 51940 - CROSS TUBE ✓
1 - W.O. 52054 - CROSS TUBE ✓
1 - W.O. 52055 - CROSS TUBE ✓
~~1 - W.O. 52057 - CROSS TUBE~~ ✓
1 - W.O. 51937 - CROSS TUBE ✓
1 - W.O. 51938 - CROSS TUBE ✓
1 - W.O. 52052 - CROSS TUBE ✓
1 - W.O. 52053 - CROSS TUBE ✓
1 - W.O. 50982 - CROSS TUBE ✓
1 - W.O. 50983 - CROSS TUBE ✓
13 - W.O. 51297 - STUDS ✓

ALL PARTS EXAMINED. HAVE BEEN FOUND ACCEPTABLE TO STANDARD.

09 10 13

Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as well as data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, express or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE MATTHEW MURDOCH DTR # E-27843
TECHNICIAN (SIGNATURE): Mike Johnston REPORT REVIEWED BY:
NAME (PRINT): Mike Johnston NAME INIT
1st TECHNICIAN 2nd TECHNICIAN
CGSB LEVEL 2 SNT LEVEL 2 CGSB LEVEL SNT LEVEL
CGSB REG. NO. 6066 CGSB REG. NO.